

WHAT IS CLAIMED IS:

1. A system, comprising:

5 a plurality of nodes, wherein each node of the plurality of nodes includes a plurality of active devices coupled by an address network;

an inter-node network configured to convey communications between the plurality of nodes;

10

wherein an address network included in a node of the plurality of nodes is configured to convey address packets specifying a coherency unit in broadcast mode;

15 wherein a different address network included in a different node of the plurality of nodes is configured to convey address packets specifying the coherency unit in point-to-point mode.

2. The system of claim 1, wherein the coherency unit does not map to any memory
20 subsystem included in the node, and wherein the address network in the node is configured to convey all address packets specifying non-mapped coherency units in broadcast mode.

3. The system of claim 2, wherein the node includes an interface coupled to the
25 address network and configured to send and receive coherency messages on the inter-node network, wherein the interface is configured to store a record for each of the address packets specifying the coherency unit in an outstanding transaction queue, and wherein the interface is configured to send a coherency message specifying the coherency unit via the inter-node network to a home node for the coherency unit in response to each record.

30

4. The system of claim 1, wherein the address network is configured to convey all address packets in broadcast mode.

5 5. The system of claim 1, wherein the additional address network is configured to convey all address packets in point-to-point mode.

6. The system of claim 1, wherein the additional address network is configured to convey all address packets specifying coherency units that map to a memory subsystem included in the node in point-to-point mode.

10

7. The system of claim 1, wherein each node includes a transmission mode unit configured to store an indication to control whether a given address packet is transmitted through the address network in broadcast mode or point-to-point mode.

15 8. The system of claim 7, wherein the transmission mode unit included in the node is configured to store a plurality of additional indications to control whether address packets other than the given address packet are transmitted through the address network in point-to-point mode or in broadcast mode.

20 9. The system of claim 7, wherein the transmission mode unit is configured to dynamically update the indication to indicate that address packets specifying a given coherency unit should be conveyed by the address network in a different mode than such address packets were previously conveyed.

25 10. The system of claim 1, wherein the node includes a directory, wherein the directory includes a plurality of entries corresponding to different coherency units mapped to a memory subsystem included in the node, wherein each entry contains an indication of whether a cached copy of a corresponding coherency unit has been created in one or more of the plurality of active devices included in the node.

30

11. The system of claim 10, wherein when an address packet is conveyed by the address network in broadcast mode, the address packet is broadcast to each of the plurality of active devices included in the node regardless of information contained within the directory.

5

12. The system of claim 10, wherein when the address packet is conveyed by the address network in point-to-point mode, the address packet is conveyed by the address network to a memory subsystem included in the node; and

10 wherein the memory subsystem is configured to access the directory and
 responsively send address packets to one or more of the plurality of
 devices dependent upon information contained within the directory.

13. The system of claim 1, wherein address packets specifying some coherency units
15 are transmitted through the address network in point-to-point mode while address packets
specifying other coherency units are transmitted through the address network in broadcast
mode.

14. The system of claim 10, wherein the address network is configured to select
20 whether to transmit an address packet in broadcast mode or in point-to-point mode
dependent on an address specified in the address packet.

15. The system of claim 1, wherein one of the plurality of active devices included in
the node is configured to transition an ownership responsibility for the coherency unit at a
25 different time than an access right to the coherency unit transitions.

16. The system of claim 1, wherein yet another address network included in another
one of the plurality of nodes is configured to convey address packets specifying the
coherency unit in broadcast mode.

30

17. A method of operating a multi-node computer system, wherein the multi-node computer system includes a plurality of nodes coupled by an inter-node network, wherein each node includes a plurality of active devices and an address network coupling the plurality of active devices, the method comprising:

5

an address network included in a node of the plurality of nodes conveying address packets specifying a coherency unit in broadcast mode;

10

an address network included in a different node of the plurality of nodes conveying address packets specifying the coherency unit in point-to-point mode.

18. The method of claim 17, further comprising the address network in the node conveying all address packets specifying non-mapped coherency units in broadcast mode, wherein the coherency unit does not map to any memory subsystem included in the node.

15

19. The method of claim 18, further comprising:

20

an interface included in the node and coupled to the address network storing a record for each of the address packets specifying the coherency unit in an outstanding transaction queue; and

25

the interface sending a coherency message specifying the coherency unit via the inter-node network to a home node for the coherency unit in response to each record.

20. The method of claim 17, further comprising the address network conveying all address packets in broadcast mode.

21. The method of claim 17, further comprising the additional address network conveying all address packets in point-to-point mode.
22. The method of claim 17, further comprising the additional address network
5 conveying all address packets specifying coherency units that map to a memory subsystem included in the node in point-to-point mode.
23. The method of claim 17, further comprising a transmission mode unit included in the node storing an indication to control whether a given address packet is transmitted
10 through the address network in broadcast mode or point-to-point mode.
24. The method of claim 23, further comprising the transmission mode unit included in the node storing a plurality of additional indications to control whether address packets other than the given address packet are transmitted through the address network in point-
15 to-point mode or in broadcast mode.
25. The method of claim 23, further comprising the transmission mode unit dynamically updating the indication to indicate that address packets specifying a given coherency unit should be conveyed by the address network in a different mode than such
20 address packets were previously conveyed.
26. The method of claim 17, wherein the node includes a directory, wherein the directory includes a plurality of entries corresponding to different coherency units mapped to a memory subsystem included in the node, wherein each entry contains an
25 indication of whether a cached copy of a corresponding coherency unit has been created in one or more of the plurality of active devices included in the node.
27. The method of claim 26, further comprising broadcasting an address packet to each of the plurality of active devices included in the node when the address packet is

conveyed by the address network in broadcast mode regardless of information contained within the directory.

28. The method of claim 26, further comprising the address network conveying an address packet to a memory subsystem included in the node when the address packet is conveyed by the address network in point-to-point mode; and

in response to receiving the address packet, the memory subsystem accessing the directory and responsively sending address packets to one or more of the plurality of devices dependent upon information contained within the directory.

29. The method of claim 17, further comprising the address network conveying address packets specifying some coherency units in point-to-point mode and conveying address packets specifying other coherency units in broadcast mode.

30. The method of claim 29, further comprising the address network selecting whether to transmit an address packet in broadcast mode or in point-to-point mode dependent on an address specified in the address packet.

31. The method of claim 17, wherein one of the plurality of active devices included in the node is configured to transition an ownership responsibility for the coherency unit at a different time than an access right to the coherency unit transitions.

32. The method of claim 17, further comprising yet another address network included in another one of the plurality of nodes conveying address packets specifying the coherency unit in broadcast mode.